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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,335	11/16/2005	Tim Chccseright	DYOUNP0287US	8953

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EXAMINER

AGRAWAL, RITESH

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/526,335

Applicant(s)

CHEESERIGHT ET AL.

Examiner

Ritesh Agrawal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/02/05, 11/16/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Amendments

1. Applicant's preliminary amendments filed 03/02/05 are acknowledged and entered.

Information Disclosure Statement

2. The Information Disclosure Statements filed 03/02/05 and 11/16/05 have been entered and considered. Initialed copies of the form PTO-1449 are enclosed with this action.

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

For example, the oath contains the addition of the phrase GBX (next to United Kingdom in the address field for all three inventors) where said addition has not been dated or initialed. Furthermore, for inventors Cheeseright and Mackey, the oath has not been dated.

Drawings

4. The drawings are objected to because there is a marking next to Fig. 1 that appears to be the letter "f". There is no reference to this in the specification. If the marking is there inadvertently, it should be removed. If there is significance to the marking, it should be explained in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following:

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The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The abstract of the disclosure is objected to because the claims provide for a method, but the abstract does not outline any method steps. Furthermore, the abstract discloses purported merits and speculative applications of the method. Correction is required. See MPEP § 608.01(b).

Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The following analysis of facts of this particular patent application follows the analysis suggested in the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility"¹. Note that the text of the Guidelines is italicized.

To satisfy section 101 requirements, the claim must be for a practical application of the § 101 judicial exception, which can be identified in various ways (Guidelines, p. 19):

- The claimed invention "transforms" an article or physical object to a different state or thing.
- The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

In the instant case, the claimed invention does not "transform" an article or physical object to a different state or thing it merely carries out molecular comparisons of molecules within a computer. This does not preclude the subject matter to be patentable as, for eligibility analysis, as

physical transformation "is not an invariable requirement, but merely one example of how a mathematical algorithm [or law of nature] may bring about a useful application." AT&T, 172 F.3d at 1358-59, 50 USPQ2d at 1452. If the examiner determines that the claim does not entail the transformation of an article, then the

¹ Available at http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf

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examiner shall review the claim to determine if the claim provides a practical application that produces a useful, tangible and concrete result. In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result achieved by the claimed invention is "useful, tangible and concrete." The claim must be examined to see if it includes anything more than a § 101 judicial exception. If the claim is directed to a practical application of the § 101 judicial exception producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S.C. § 101. If the examiner does not find such a practical application, the examiner has determined that the claim is nonstatutory. (Guidelines, p. 20)

The question is thus whether the final result achieved by the claimed invention satisfies all three criteria of being useful, and concrete, and tangible.

Furthermore, the useful, tangible, and concrete result must be recited in the claim itself, rather than addressed in specification.

(2) **"TANGIBLE RESULT"** The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result. The opposite meaning of "tangible" is "abstract."

The instant claims are drawn to computational means for comparing molecules using field points. However, as claimed, the method does not produce a tangible result. For example, the method as claimed may take place entirely within the confines of a computer or a human mind without any communication to the outside world and without using or making available for use the results of the molecular comparisons. Thus, the instant claims do not produce any tangible result. Furthermore, in relation to claims 13-16, the simple placement of non-statutory descriptive material on a computer-interpretable medium or in a computer does not make it statutory.

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Thus, the final result achieved by the claimed invention does not satisfy all three criteria of being useful, and concrete, and tangible.

Additionally, claims 13-16 are drawn to computer interpretable media containing instructions for carrying out the process of claim 1. At least one embodiment of such instructions could be non-functional descriptive material.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 3, and 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "the fields" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 1, to which it refers, discloses calculation of "field points" and properties associated therewith or for the calculation of a single "field" not calculating "fields."

Claim 6 recites the limitation "comparing the field sample values and the field size values" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 1, from which it depends, does not disclose a step of comparing field sample values and field size values. It discloses a step of combining the values.

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Claim 7 recites the limitation "the second set" in line 5. There is insufficient antecedent basis for this limitation in the claim. The claim recites "a set" and a "second molecule" but not a "second set."

Claim 9 recites the limitation "the fields" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 7, to which it refers, discloses calculation of "field points" and properties associated therewith or for the calculation of a single "field" not calculating "fields."

Claim 10 recites the limitation "comparing the field sample values and the field size values" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 7, from which it depends, does not disclose a step of comparing field sample values and field size values. It discloses a step of combining the values.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 6, 7, 8, 10, 11, 12, and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Ashworth (IDS, GB Patent Publication # 2,317,030, March 11th, 1998).

The claims are drawn to a method of comparing molecules comprising:

A) Providing field points of a first molecule

B) Determining the position of the field points of a first molecule and the field of a second molecule

C) Combining the information from (A) and (B) to obtain a score indicating similarity

Ashworth discloses a method of determining field points for a molecule (abstract) wherein the information associated with the field points includes position and size/extent of the field point (page 10, lines 21-23). Ashworth further discloses combining (or overlaying) the field point information to obtain an overlay score which indicates similarity (page 8, lines 4-7).

With respect to claim 2, Ashworth discloses that the information associated with field points includes the position and size and extent. Furthermore, Ashworth discloses the use of equations in Vinter et al. (IDS, Journal of Computer Aided Molecular Design, Vol. 9, Pages 297-307) for calculations (page 10, lines 7-11) which applicant's specification details represent a field definition formula (page 12, lines 7-10).

With respect to claim 6, as referenced above, Ashworth discloses the use of the equations of Vinter et al. for the comparisons. Applicant discloses the equation used for comparison by Vinter et al. (specification, page 6, line 4) where the equation is taking the product of field point values (top line) which, as disclosed by Ashworth (as referenced above), consider size/extent and position.

With respect to claim 7, with the requirement for determining an aggregate score calculation, Ashworth discloses aggregate averaging (abstract, lines 10-11).

With respect to claims 8, and 10, they represent the limitations of claim 7 as applied in conjunction with claims 2 and 6, respectively. Since Ashworth discloses the

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limitations of claims 2 and 6 (as referenced above) and Ashworth is using an analogous method on the various molecules used to reach an aggregate value, Ashworth discloses the limitations of claims 8 and 10.

With respect to claim 11, since, as disclosed by Ashworth, the field size value is a value taken into account in defining the field point (as referenced above) and the field point values are energy values (measurement of energy extrema, for example, see Vinter et al., abstract), the field size values under consideration by Ashworth et al. represent energy values.

With respect to claim 12, Ashworth discloses the use of positive or negative maxima (abstract, line 4), wherein applicant's definition of minima is negative maxima (specification, page 7, lines 18-19).

With respect to claims 13-16, Ashworth discloses a computer apparatus for carrying out the method (page 8, lines 19-23). Ashworth's disclosure of such an apparatus necessarily discloses a computer-interpretable medium with the method since the computer couldn't execute the method unless the computer had the method on a computer-interpretable medium.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 3, 4, 5, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashworth (IDS, GB Patent Publication # 2,317,030, March 11th, 1998) as applied to claims 1, 2, 6, 7, 8, 10, 11, 12, and 13-16 above, and further in view of Mestres et al. (Journal of Computer-Aided Molecular Design, Vol. 13, Pages 79-93, 1999).

The claims are drawn to the method of claim 1, with the additional limitation of scaling the field sizes.

Ashworth discloses the method of claim 1 (as referenced above), but does not disclose scaling the field sizes.

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Mestres et al. disclose scaling field sizes (page 81, 2nd column, 1st paragraph).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the method of Ashworth to include the scaling method of Mestres et al. One of ordinary skill in the art would have been motivated to do so because it would allow them to compare molecules of different sizes (Mestres et al., page 81, 2nd column, 1st paragraph, lines 2-4).

With respect to claim 5, Mestres et al. disclose using a square root for scaling (page 81, equation (5)).

In light of the indefiniteness of the term "fields" as related to claims 3 and 9 above, Mestres disclose the calculation of similarity fields by interpolating from pre-calculated grid information (page 84, 1st column, 5th paragraph through 2nd column 3rd paragraph and equations 11 and 12).

Conclusion

10. No claim is allowed.

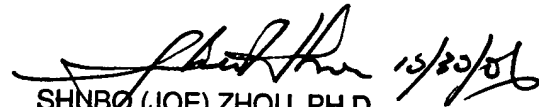
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ritesh Agrawal whose telephone number is (571) 272-2906. The examiner can normally be reached on 8:30 AM - 5:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ritesh Agrawal



SHUBO (JOE) ZHOU, PH.D.
PATENT EXAMINER